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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,917	08/28/2001	Gurtej Singh Sandhu	303.676US2	6986
21186	7590	02/12/2004	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			VOCKRODT, JEFF B	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/940,917

Applicant(s)

SANDHU ET AL.

Examiner

Jeff Vockrodt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 44,45 and 60-83 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 44,45 and 60-83 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is in response to the amendment filed on January 13, 2004. Claims 44, 45, and 60-83 are pending.

#### ***Claim Rejections - 35 USC § 112***

The following are quotations from the first and second paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 40, 45, and 60-83 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The new claim term "similar" considered along with all of the other claim limitations and in light of the specification injects an irresolvable ambiguity into the scope of the claim that renders the claim indefinite within the meaning of 35 U.S.C. § 112, 2d paragraph. The claims require two contradictory limitations: (1) the layer of titanium alloy having a similar chemical profile in walls and a base portion of the layer of titanium alloy; and (2) a titanium silicide contact formed from interaction between the layer and the bottom of the contact hole. The presence of the titanium silicide contact limitation makes certain that the claim does not cover some intermediate product (i.e., prior to the annealing step). The specification, in discussing the annealing step, states, "the layer 16 of titanium or titanium alloy proximate to the silicon is converted to titanium silicide" (Spec, page 9, ll. 12-13). This subject matter corresponds to the claimed "titanium silicide contact formed from interaction between the layer and the bottom of the contact hole." The claim requires interaction sufficient to form a  $\text{TiSi}_x$  contact while maintaining a similar chemical profile between portions of the layer involved in the interaction

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and those that are not involved in the interaction. There is no basis in the specification for determining how much interaction and similarity is required by the claim. The figures are unhelpful in this inquiry due to their diagrammatic nature (i.e., they fail to show any of the titanium proximate to the silicon being converted, while the spec. makes clear that this is the case). No data is given assessing the similarity and interaction discussed above. This claim cannot be further examined on its merits. Such activity would involve choosing between two equally plausible and contradictory interpretations of the claim. One interpretation would give no weight to the word "similar" such that the claim would cover the disclosed embodiments and not conflict with interaction sufficient to form a TiSix contact limitation. Thus, reading the claim in light of the specification to encompass the disclosed embodiments requires ignoring the newly added "similar" limitation. That interpretation would encompass the prior art by failing to distinguish over the most recently applied reference (U.S. 5,644,166, Honeycutt). On the other hand, giving anything more than an insubstantial weight to the term "similar" raises a question as to whether applicants were in possession of the claimed subject matter (i.e., a silicide that somehow only extends into the substrate without affecting the composition of the deposited silicide layer) as of filing so as to satisfy the written description requirement. At any rate, there is no standard in the specification for assessing how "similar" the deposited layer should be while maintaining interaction sufficient to form a silicide layer. Accordingly, the examiner finds claims 44, 45, and 60-83 indefinite under 35 U.S.C. § 112, 2d paragraph.

### ***Conclusion***

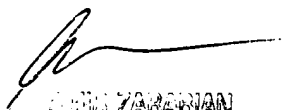
Any inquiry concerning communications from the examiner should be directed to Jeff Vockrodt at (703) 306-9144 who can be reached on weekdays from 9:30 am to 5:00 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian, can be reached at (703) 308-4905.

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The fax numbers for this Group are (703) 305-3432, (703) 308-7722, (703) 305-3431, and (703) 308-7724. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist at (703) 308-0956.

February 7, 2004

J. Vockrodt



ARMIN ZAREBIAN  
UNITED STATES PATENT EXAMINER  
TECHNOLOGY CENTER 2800